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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,493	10/28/2003	Chan-Soo Hwang	678-1211 (P10802)	8168
66547 7590 03/30/2007 THE FARRELL LAW FIRM, P.C. 333 EARLE OVINGTON BOULEVARD SUITE 701 UNIONDALE, NY 11553			EXAMINER ETTEHADIEH, ASLAN	
			ART UNIT 2611	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/30/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/695,493

Applicant(s)

HWANG ET AL.

Examiner

Aslan Ettehadieh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of claims 1 – 14 (group 1) in the reply filed on 02/21/2007 is acknowledged. Claims 15 – 20 are now cancelled. Office action address claims 1 – 14.

### ***NOTE***

1. Please note that all references made herein to the instant application are made with respect to paragraphs of U.S. Patent Application Publication No. 2004/0136465, the publication corresponding to the instant application.

### ***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Request for Information***

Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

The information is required to enter in the record the art suggested by the applicant as relevant to this examination in figures 3 –5 and 7 and paragraphs 13 – 27 and 31 – 35.

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This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 and 8 recites the limitation "the modulation scheme" (found in second limitation after the preamble). There is insufficient antecedent basis for this limitation in the claim. Does the applicant mean "the overlapped antenna scheme", "the predetermined modulation scheme", "a modulation scheme", or etc.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1 – 14 provisionally rejected on the ground of nonstatutory double patenting over claims 1 – 12 of copending Application No. 10/695579. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows:

Regarding claim 1, copending Application No. 10/695579 discloses apparatus for transmitting data in a mobile communication system including at least three transmission antennas of first to third transmission antennas, and using an overlapped antenna scheme for grouping the first and second transmission antennas into a first transmission antenna group and grouping the second and third transmission antennas into a second transmission antenna group, the apparatus comprising: first and second modulators for receiving L information bit streams to be transmitted through the first transmission antenna group, modulating each of the L information bit streams in a predetermined modulation scheme, and outputting first and second modulated symbol streams (claim 1); third and fourth modulators for receiving L other information bit streams to be transmitted through the second transmission antenna group, modulating each of the L information bit streams in the modulation scheme, and outputting third and

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fourth modulated symbol streams (claim 1); first to fourth puncturers for receiving the first to fourth modulated symbol streams, respectively, and puncturing at least one modulated symbol in a predetermined position among the received first to fourth modulated symbol streams (claim 1); and a multiplexer for transmitting a modulated symbol stream output from the first puncturer through the first transmission antenna, transmitting a modulated symbol stream output from the second puncturer and a modulated symbol stream output from the third puncturer through the second transmission antenna after summing up the modulated symbol streams, and transmitting a modulated symbol stream output from the third puncturer through the third transmission antenna (claim 1; where multiplexing also includes summing). The rejection of claim 1 is representative of claims 2 – 14.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

4. Claims 1 – 14 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 – 18 of copending Application No. 10/694197 in view of Walton et al. (US 2004/0156328). Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1 – 18 of copending Application No. 10/695493 does not disclose a multiplexer for transmitting a modulated symbol stream output from the first puncturer through the first transmission antenna, transmitting a modulated symbol

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stream output from the second puncturer and a modulated symbol stream output from the third puncturer through the second transmission antenna after summing up the modulated symbol streams, and transmitting a modulated symbol stream output from the third puncturer through the third transmission antenna, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to multiple transmitting paths, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Walton discloses an apparatus for transmitting where there are a plurality of processing streams that including a puncturer a modulating function (mapping) and then multiplexing pilot symbols with the punctured modulation stream (figure 8 elements 810x – 810y, 120x – 120y, figure 9 elements 920, 924, 926, Pilot Symbols, paragraphs 106 – 116), where it would have been obvious to one skilled in the art at the time of invention was made to use an apparatus for transmitting where there are a plurality of processing streams that including a puncturer a modulating function (mapping) and then multiplexing pilot symbols with the punctured modulation stream as taught by Walton to facilitate random access ability in the wireless system (paragraph 4). The rejection of claim 1 is representative of claims 2 – 14.

This is a provisional obviousness-type double patenting rejection.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 – 2 and 8 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibutani (US 2003/0002518) in view of Kim et al., “A new soft handover scheme using punctured turbo codes in the wideband CDMA system” IEEE Vehicular Technology Conference, 2001 Spring, pp 1420 – 1424.
3. Regarding claims 1 and 8, Shibutani discloses apparatus for transmitting data in a mobile communication system including at least three transmission antennas of first to third transmission antennas, and using an overlapped antenna scheme for grouping the first and second transmission antennas into a first transmission antenna group and grouping the second and third transmission antennas into a second transmission antenna group, the apparatus comprising: first modulator for receiving L information bit streams to be transmitted through the first transmission antenna group, modulating each of the L information bit streams in a predetermined modulation scheme, and outputting first modulated symbol streams (figure 3 elements 144, 146, 147, 148, paragraphs 6, 14, 43 – 46); first puncturer for receiving the first modulated symbol streams, and puncturing at least one modulated symbol in a predetermined position among the received first modulated symbol streams (figure 3 elements 144, 146, 147, 148, paragraphs 6, 14, 43 – 46); and a multiplexer for transmitting a modulated symbol stream output from the first puncturer through the first transmission antenna (figure 3 elements 144, 146, 147, 148, paragraphs 6, 14, 43 – 46). Shibutani is not explicit about four associated similar transmitting paths, and also is not explicit about transmitting a symbol stream output from a second similar path and a symbol stream output from a



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third path through the second transmission antenna after summing up the symbol streams, and transmitting a symbol stream output from the third path through the third transmission antenna, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to multiple transmitting paths, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

In the same field of endeavor, however, Kim discloses four associated similar transmitting paths and transmitting a symbol stream output from a second similar path and a symbol stream output from a third path through the second transmission antenna after summing up the symbol streams, and transmitting a symbol stream output from the third path through the third transmission antenna (section 3. figure 3, where in the figure it is shown to have transmitting path to include two rate matching elements (punctures) associated with multiplexing elements, the figure only shows 2 base stations, and it would have been obvious to one skilled in the art at the time of invention was made to have four puncturing paths and four associated multiplexing operations, please also note the output of each puncturer is directed to every multiplexing element)

Therefore it would have been obvious to one skilled in the art at the time of invention was made to use four associated similar transmitting paths and transmitting a symbol stream output from a second similar path and a symbol stream output from a third path through the second transmission antenna after summing up the symbol streams, and transmitting a symbol stream output from the third path through the third

transmission antenna as taught by Kim in the system of Shibutani to improve performance of soft handover (abstract, section 1 paragraph 4).

6. Regarding claims 2 and 9, Shibutani further discloses wherein for the modulated symbol streams output from the first to fourth modulators, the first to fourth puncturers each set the number of punctured modulated symbols to the same number (paragraphs 40, 43).

4. Regarding claims 3 and 10, Shibutani further discloses wherein the first to fourth puncturers each set modulated symbol streams output from the first to fourth modulators so that a position where the modulated symbol is punctured is periodically repeated (paragraphs 43, 51).

5. Claims 4 – 7 and 11 – 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibutani (US 2003/0002518) in view of Kim et al., "A new soft handover scheme using punctured turbo codes in the wideband CDMA system" IEEE Vehicular Technology Conference, 2001 Spring, pp 1420 – 1424 in further view of Walton et al. (US 2004/0156328)

6. Regarding claims 4 – 7 and 11 – 14, Shibutani discloses a position where the sequence is inserted is determined according to a puncturing matrix (figures 1 and 4, figure 3 elements 144, 146, 147, 148, paragraphs 6, 14, 43 – 46). Shibutani is not explicit about wherein if the number of modulated symbols constituting the modulated symbol stream is 4 and/or 8, a puncturing matrix defined as a specific matrix.

In the same field of endeavor, however, Walton discloses an apparatus for transmitting where there are a plurality of processing streams that including a puncturer

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a modulating function (mapping) and then multiplexing pilot symbols with the punctured modulation stream (figure 8 elements 810x – 810y, 120x – 120y, figure 9 elements 920, 924, 926, Pilot Symbols, paragraphs 106 – 116).

Therefore it would have been obvious to one skilled in the art at the time of invention was made to use an apparatus for transmitting where there are a plurality of processing streams that including a puncturer a modulating function (mapping) and then multiplexing pilot symbols with the punctured modulation stream as taught by Walton in the system of Shibutani to facilitate random access ability in the wireless system (paragraph 4).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use any puncturing pattern. Applicant has not disclosed that the specific puncturing pattern provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with any puncturing pattern.

Therefore, it would have been obvious to use any puncturing pattern to one of ordinary skill in this art to modify any puncturing pattern to the claimed puncturing pattern to provide proper, rate matching, rate to fit the physical channel.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aslan Ettehadieh whose telephone number is (571) 272-8729. The examiner can normally be reached on Monday - Friday, 8:00am - 4:30pm.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aslan Ettehadieh  
Examiner  
Art Unit 2611

AE

  
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SUPERVISORY PATENT EXAMINER